JBE-P2L1 Draco Fire Control Panel

Installation & Operation Manual

M-P2L1-1 EN
Release Date: November 15, 2019 Rev 01

Manufacturer
Jade Bird Fire Alarm International (Europe), S.L. Carrer de Tarragona 157 7-2, 08014 Barcelona, Spain

REV 01. This document covers control panels with firmware version 1.0.

This product is CE marked and meets the requirements of the following norms and directives:

- EN 54-2 / UNE 23007-2: Control and indicating equipment for fire detection and fire alarm systems.
- EN 54-4 / UNE 23007-4: Power supply equipment for fire detection and fire alarm systems.
- EN 61000-6-3 Electromagnetic compatibility (Emissions)
- EN 50130-4 Electromagnetic compatibility (Immunity)
- EN 62368-1 Safety requirements
- RoHS Directive 2011/65/EU.

Note regarding: 2012/19/EU (WEEE directive): This product cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see: www.recyclethis.info.

For additional product and contact information, visit www.jadebird.eu.com.

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1 Introduction

This manual contains the information and the instructions required to install, commission, operate and maintain the JBE-P2L1 (Draco) fire control panel.

Only trained professionals should attempt to install this panel. An incorrect installation may not provide the performance expected from fire safety devices.

2 General product description

2.1. Overview

The Draco panel is a standalone fire control panel designed for wall mounting. This panel meets the requirements for fire detection and fire alarm systems of EN 54 part 2 (control and indicating equipment) and EN 54 part 4 (power supply equipment).

Draco features up to two addressable fire detection and alarm loops. Each panel can control up to 400 compatible detection and alarm loop devices. The panel color LCD and LED zone boards make a friendly user interface. Comprehensive commissioning and maintenance reports can be obtained through the keypad or downloaded from the USB port. The panel includes an internal power supply and a battery charger which will ensure operation even in the event of interruptions of the building's mains power. Optional expansion modules such as the printer or the supplementary battery box allow the system to adjust to the installation's needs.

2.2. EN 54 optional features

The Draco panel has been designed following the EN 54-2 standard. In addition to its mandatory requirements, it also provides the following optional features with EN 54 requirements:

Embedded EN 54-4 Power supply with battery charger:

The power supply built in the Draco control panel allows its operation even in the event of interruption of mains power supply. The panel is compatible with standard 12 V sealed lead-acid batteries of 7, 12 and 17 Ah of capacity. Note that to host the 17 Ah batteries, the optional battery box JBE-BAT is needed.

Detailed diagnostics, indications and control:

Draco features the intelligent JBE loop protocol and a sophisticated user interface. Thanks to this, the system can process and control real time data from each device connected to the loop. This allows offering the following features, amongst others:

- Display of status and faults for each loop device (detectors, manual call points, output modules…)
- Disablements of individual points or complete zones
- Disablement of individual output modules or output groups
- Testing individual outputs or output groups
- Setting individual zones in and out of test while the rest of the building remains protected

Loop devices and fire detection zones:

Each Draco panel can drive up to two class A detection loops. Each detection loop can control up to 200 loop addresses, which can be configured for detection and/or alarm functions. That is, each panel can host a maximum of 400 addressable devices.

Detectors, MCPs and input modules are associated to detection zones. The fire panel logic allows configuring up to 400 zones. The fire panel's user interface provides a dedicated LED alarm indicator for each of the first 30 zones.

Redundant class-A loop integrity monitoring and self-healing

The addressable loops of the Draco panel can be connected in stubs (class B) or looped (class A) topologies. When more than 32 initiating devices are connected to the loop, class A topology shall be used and JBE-2150 isolators shall be installed in the loop to limit the consequences of a short circuit in the loop.

Wiring topologies in class A provide a redundant connection with loop devices. This is the topology with the highest robustness to wiring faults.

Output group activation:

In response to fire alarm events, up to 400 output groups can be activated with or without programmed delays. The Draco panel meets the optional requirements regarding outputs to:

- Fire alarm devices (outputs assigned to group 001-SND)
- Fire alarm routing equipment (outputs assigned to group 002-FR).

These two output groups implement the corresponding EN 54-2 requirements regarding programming, supervision and indication. The remaining 398 groups are freely programmable.

Dependency on more than one alarm signal (type C coincidence detection)

Thanks to the advanced programming menu, the activation of outputs can be linked to the reception of more than one alarm. In this configuration the panel indicates alarm normally, but the activation of outputs is inhibited until a second alarm signal is received from another initiating device. Confirmatory signals may come from detectors or manual call points in the same or another zone.

Day/Night modes of operation

The day/night schedule allows adjusting the fire detection settings to the activity of the building. At the scheduled times, the fire panel can activate or deactivate delays and change the sensitivity of each detector independently. The scheduled activation and deactivation of delays is compatible with a manual activation or deactivation.

Three sensitivity profiles (Day, Night and Special) can be programmed and assigned to the weekly time periods. This allows selecting the most convenient sensitivity for each detector in each moment of the week.

2.3. Additional ancillary functions

Event/history log with up to 10.000 events
The panel supports the storage of up to 10.000 history events of all types. Authorized users can access the logs to either review them in the panel, print them or save them to a USB drive.

Non-Polar bus for field devices
The system adopts a non-polar, double-wire addressable bus technology. All compatible loop devices can operate connected to the communication bus in both polarities.

User interface with rich graphics and in multiple languages
The true color 7" (17.8cm) LCD allows presenting to the user all the ongoing events in real time. Users can select their preferred language from the user interface.

Integrated events printer
The optional printer module allows printing selected events in real time or during inspection interventions,

Installation wizard:
A step-by-step wizard will support the installer for a quick and simple commissioning. All site configuration options can be loaded from the fire panel's user interface.

2.4. Regulatory information

CE

0370

Jade Bird Fire Alarm International (Europe), S.L.
C. Tarragona, 157. 08014 Barcelona (Spain)
20
DoP-0370-CPR-3813-1

EN 54-2 , EN 54-4
JBE-P2L1
Draco Fire Control Panel
Technical file: see TF-JBE-P2L1-10 provided by the manufacturer.

Jade Bird Fire Alarm International (Europe), S.L.
C. Tarragona, 157. 08014 Barcelona (Spain)
www.jadebird.eu.com

3 Technical Specifications

This chapter will review the technical specification and provide detailed data on the overall system, and the electrical, mechanical and environmental characteristics of the Draco fire control panel.

3.1.1 General Data

Table 1: General Panel Data

System dimensions	
Number of detection loops	1 or 2
User-selectable detection loop topologies	Class A (ring) or Class B (stub)
24 V outputs to field devices	2
Maximum number of detection zones	400
Maximum number of output groups	400

Connection to field devices	
Maximum loop distance	2.000 m
Recommended cable type	2 x 1.5 mm^2 unshielded twisted pair
Maximum number of addressable points (Free mix of detectors, MCP, IO, sounders)	200 per Class A loop (max 2x200)
Detection loop voltage	JBE pulsed protocol (20 to 30 Vpp)
Detection loop available current	200 mA
DC outputs to field devices	2 x 2 A @ 24 V DC
Field cable access to panel cabinet	Ø20 mm knockouts (18x)

Alarm & Fault relay outputs	
Connection type	Normally-Open voltage-free relay
Electrical contact ratings	2A @ 30 VDC

3.1.2 Power supply

Power supply	
Mains voltage	AC 230 V (196 – 253 V)
Mains fuse	2.5 A slow acting
Power rating (mains)	2.5 A max
Max. sustained DC output current ($I_{max\ a}$)	4 A
Max. alarm DC output current ($I_{max\ b}$)	5.5 A

3.1.3 Batteries

Batteries	
Quantity	2 batteries (sold separately)
Approved battery types	Primary cabinet (6.3 mm Faston tab terminal) • Yuasa NP7-12LFR • Yuasa NP12-12FR With optional battery box kit (Ø5 mm ring terminal) • Yuasa NP17-12IFR
Float charge compensation	-36 mV/ºC
Internal battery resistance	Max 1 Ω

3.1.4 Product range and compatibility

The following chart contains the list of products from Jade Bird Europe which are compatible with the Draco fire panel.

Table 2: Compatible Product Range

Loop devices	JBE Code
EN 54-11 Manual Call Point	JBE-2100
EN 54-5 Heat detector with remote indicator output	JBE-2106
EN 54-7 Optical detector with remote indicator output	JBE-2111
EN 54-5 & EN 54-7 Optic-heat combo detector	JBE-2115
EN 54-18 Input module	JBE-2120
EN 54-18 Input / Output module	JBE-2125
EN 54-3 Sounder	JBE-2135
EN 54-3 Sounder with visual indicator (VID)	JBE-2145
EN 54-17 Isolator	JBE-2150
Detector Base (2 contacts)	JBE-2160
Detector/Sounder Base (5 contacts)	JBE-2165

Panel expansion accessories	JBE Code
Draco external battery box	JBE-BAT
Draco 2nd Loop expansion card	JBE-P2L1-EXLP
Draco printer box assembly	JBE-PRT

3.1.5 Panel's optional modules

The panel can receive the following optional components:

3.1.5.1 Second loop card (JBE-P2L1-EXLP)

The second loop card (JBE-P2L1-EXLP) can be added to the main loop card to expand the panel into a two (2) loop panel. The second loop has the same capabilities as the first loop in the number of devices and power limits.

3.1.5.2 Printer (JBE-PRT)

The printer consists of an external printer box with a thermal printer. It can be installed/attached below the cabinet of the panel. When the printer is installed, users with access level 3 can configurate the printer from the Adjust menu.

3.1.5.3 External battery box for 17 Ah batteries (JBE-BAT)

The external battery box provides the housing and cables needed to use two (2) 17 Ah batteries. This is to use 17 Ah batteries instead of the 7 or 12 Ah batteries for longer stand by time.

4 Installation

This chapter provides the necessary information and guidelines for the installation of the Draco fire control panel. Installation of this product shall only be conducted by trained professionals. Installation by personnel other than trained experienced electrical technicians may impact the overall performance of the system.

	**Voltage – Electrical shock** Installation works may only be conducted by qualified personnel and when the system is safely de-energized
	**Fire systems training** Incorrect installation or maintenance procedures can impair the performance of safety devices.
	Electrostatic Risk Suitable protective measures must be taken when manipulating electronic boards.

4.1. Pre-Installation Checks

Prior to beginning, the installer shall inspect all system devices and electrical connections to ensure that they are correctly prepared and in good condition to start the installation.

The installation must comply with all applicable national and local regulations.

4.1.1 Selection of the location of installation

The panel should be installed in a clean and dry area which is easily accessible to emergency responders and maintenance personnel.

This product is designed for indoor use. The table below describes the safe environmental constraints of the installation area.

Operating temperature	-5 to +40 °C
Storage temperature	-20 to +55 °C
Relative air humidity (non-condensing)	≤ 95 %
Ingress Protection category	IP30

4.1.2 Mechanical dimensions and wall area

Verify that the desired installation location has enough space for the panel mounting and cable routing, and that it can bear safely the weight of the panel (see table below).

Table 3: Mechanical Dimensions

Draco Main Panel	
Dimensions (WxHxD)	440 x 370 x 126 mm
Weight (without batteries)	4 kg
Weight (including 12 Ah batteries)	12 kg

Draco Printer Box	
Dimensions (WxHxD)	440 x 120 x 126 mm
Weight	1 kg

Draco Battery Box	
Dimensions (WxHxD)	440 x 250 x 126 mm
Weight (including 17 Ah batteries)	14 kg

Note that the Main panel, the printer box and the battery box stack together. Therefore, when these 3 parts are used, the total dimensions of the assembly are (WxHxD) = 440x740x126 mm and a total weight of 19 kg (including 2x17 Ah batteries). The accessory modules are not intended to be installed separate from the main fire panel.

Installation in areas with high levels of electromagnetic interference should be avoided.

The height of the Draco panel's LCD should be at the user's eye level. This will provide for ideal readability of the LCD screen.

4.1.3 Planning wire topology to meet EN 54-2 requirements on integrity of transmission paths.

EN 54 and installation guidelines require that the effects of a wiring fault do not affect more than 32 initiating devices (detectors or MCPs). In order to meet these requirements, detection circuits with more than 32 devices shall be installed in a redundant loop (class A) wiring topology with the addition of compatible JBE isolators installed at least every 32 initiating devices.

Installations with less devices (≤32) per detection circuit can be installed in non-redundant stubs (class B). Note that each loop of the Draco fire panel can drive up to 2 stubs.

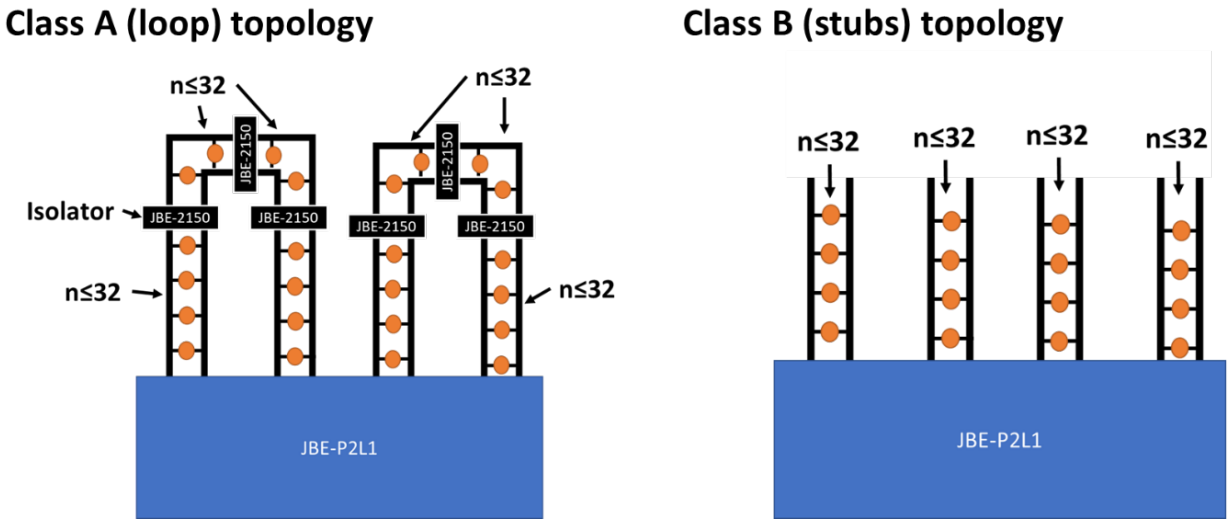


Figure 1: EN 54 Loop Topology Options

4.2. Physical mounting instructions

4.2.1 Panel assembly

The Draco fire panel is supplied fully assembled and ready to be installed into a wall. The following accessories can be acquired separately and will need to be assembled to the fire panel prior to its wall mounting.

Draco 2nd Loop Card	JBE-P2L1-EXLP
Draco Printer	JBE-PRT
Draco Battery Box	JBE-BAT

Assembly of JBE-P2L1-EXLP (Draco 2nd Loop Card)

1. While the panel is unpowered, open the fire panel's cabinet using the provided key.
2. Align the connectors in the JBE-P2L1-EXLP expansion board with the connectors J2 and J4 of the main loop card (JBE-P2L1-LOOP) and push firmly.
3. Affix the expansion loop card to the existing loop card using the two provided M3 spacers and screws.

Assembly of JBE-PRT (Draco Printer)

1. While the panel is unpowered, open the fire panel's cabinet using the provided key.
2. Remove the covering plate in the left side of the cabinet's bottom.
3. Insert the 2 M6 screws provided with the Draco printer into the matching holes of the main panel cabinet's bottom.
4. Place the Draco printer box below the main panel's cabinet and use the 2 protruding screws to align the 2 housings.
5. Use the 2x provided nuts to fasten the printer to the panel's main housing. Tighten firmly.
6. Route the provided flat ribbon cable through to the opening between the panel and the printer.
7. Connect the flat ribbon cable to connector J3 in the panel's display board (PCB JBE-P2L1 DP) and to the printer.
8. Connect the provided earthing cable from the panel's earthing stud to the printer's earthing stud. Tighten the M3 nuts firmly

Assembly of JBE-BAT (Draco battery box)

Note that the JBE-BAT battery box can be assembled either directly under the panel's main cabinet or under a panel which already has a JBE-PRT module assembled. In both cases, the installation procedure is the same.

1. While the panel is unpowered, open the fire panel's cabinet using the provided key.
2. Remove the knockout in the center of panel cabinet's base.
3. Place the Draco battery box below the main panel's cabinet (or below the printer module, if it has been installed) and use the 2 provided M6 screws to align the housings.
4. Use the 2x provided nuts to fasten the battery. Tighten firmly.
5. Using a PZ2 screwdriver, loosen the "battery" terminal screws in the power supply unit to remove the original battery cables.
6. Replace the original "Faston" battery cables with the "M5 ring" battery cables provided with the battery box. Respect polarity (red ► "+" ; black ► "-"). Tighten the PSU screws firmly
7. Remove the original temperature sensor by pulling it gently off the "Temp sensor" connector in the PSU. Replace it by the longer temperature sensor provided with the JBE-BAT.
8. Route the newly installed battery cables and temperature sensor through the knockout in the center of the panel's base down to the battery compartment.
9. Connect the provided earthing cable from the earthing stud in the battery box to the earthing stud in the cabinet above. Tighten the M3 nuts firmly

4.2.2 Mounting to the wall

1. Before starting installation, verify that the wall at the desired location is appropriate and suitable for the weight and environmental requirements of the panel.
2. Based on Figure 2, verify the clearance around the panel in the desired area and measure the location of the centering hole on the wall.

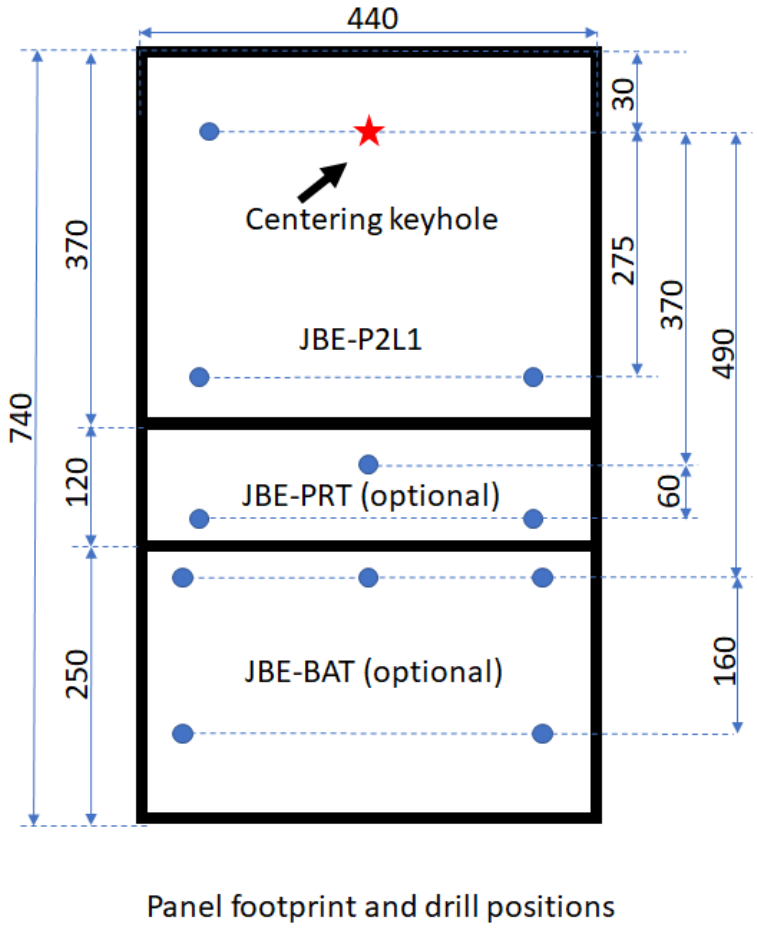


Figure 2: Mounting Holes

3. Use the appropriate mounting hardware to secure one screw into the wall, at the height of the user's eyes. Leave the screw protruding approximately 5 mm from the wall, as illustrated in Figure 3. This screw will bear the weight of the panel, while leveling it to mark the hole positions in the wall. Thanks to this screw, the operation can be performed by a single operator

Figure 3: First screw for center keyhole

4. With the batteries removed, hang the panel from the screw on the wall by passing it through the central keyhole in the back of the panel.
5. From this position, level the panel and mark the mounting hole locations:

    a. Three (3) additional holes in the panel cabinet's backplane
    b. Three (3) holes for the printer box, if it has been installed.
    c. Five (5) holes for the battery box, if it has been installed.

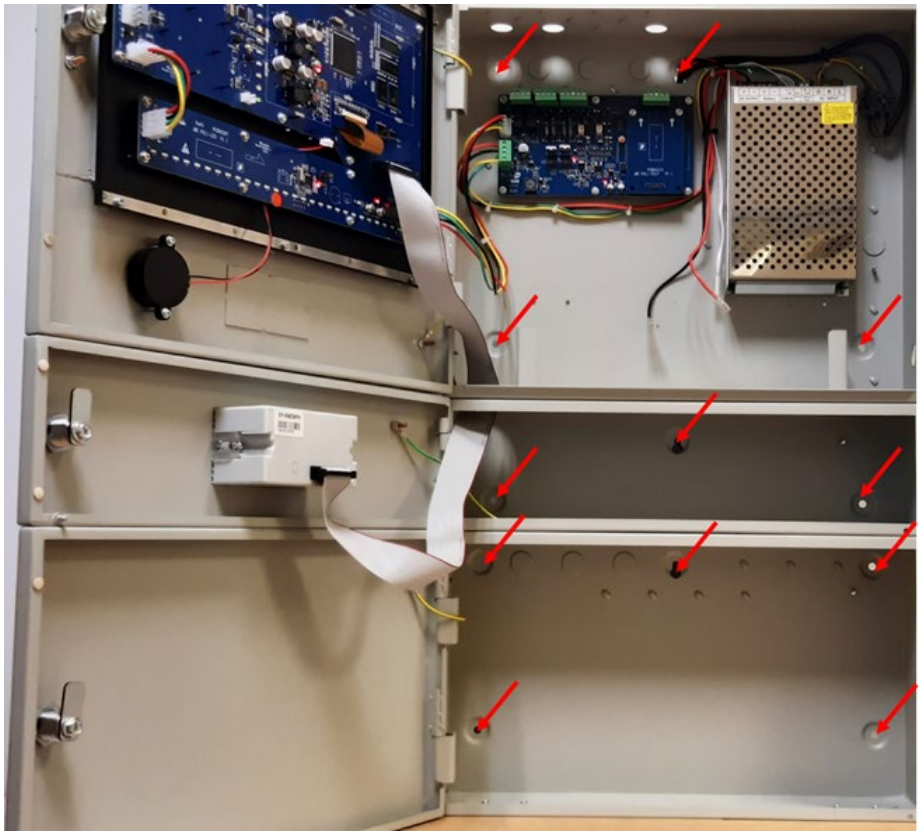


Figure 4: Mounting Hole Locations

6. Remove the panel from the wall to drill and install in it the appropriate anchors.
7. Select the knockouts to run (separately) the mains power, detection loops and 24 V field wiring. Remove them carefully and install a M20 wire gland in the openings.
8. Hang again the panel from the screw on the wall. Install the load-bearing screws.

4.2.3 Electric wire connections

The door of the fire panel protects ordinary users from electric risks. The door of the fire panel must be kept closed, locked and with the key removed. Access to the fire panel's interior shall be restricted to instructed users.

	Voltage – Electrical shock Installation works must only be conducted by skilled and instructed personnel.
	When manipulating the panel interior and wires, be aware of the risk electric shock and electric voltage. Ensure proper lock out / tag out procedures are followed before manipulating the panel or its wiring.

1. Prior to conducting wire connection works:
    a. Ensure that the mains power line is properly de-energized following a lock out / tag out procedure.
    b. Verify that the panel batteries are not assembled.

2. Route the following pairs of wire from the installation into the panel through separate cable glands and screw their terminations to their corresponding connectors:

    a. Loop 1 side A ►Connect to position L1a (+ and -)
    b. Loop 1 side B ►Connect to position L1b (+ and -)
    c. Field 24V DC #1 ►Connect to position 24Va (+ and -)
    d. Loop 2 side A ►Connect to position L2a (+ and -)
    e. Loop 2 side B ►Connect to position L2b (+ and -)
    f. Field 24V DC #2 ►Connect to position 24Vb (+ and -)
    g. Fire alarm signal ►Connect to position "Fire" (normally open relay contact)
    h. Fault signal ►Connect to position "Fault" (normally open relay contact)

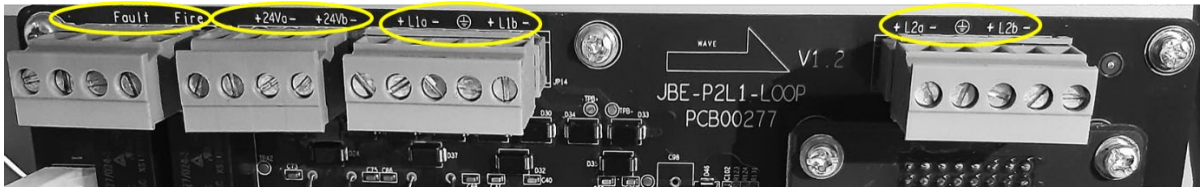


Figure 5: Loop Board Connections

3. With the panel secure, run the mains power line into the panel and secure it to the provided mains terminal block.

Figure 6: Mains Connections

⚠ This equipment must always be earthed

4. Secure all incoming wires to the cabinet with the provided tie wraps.

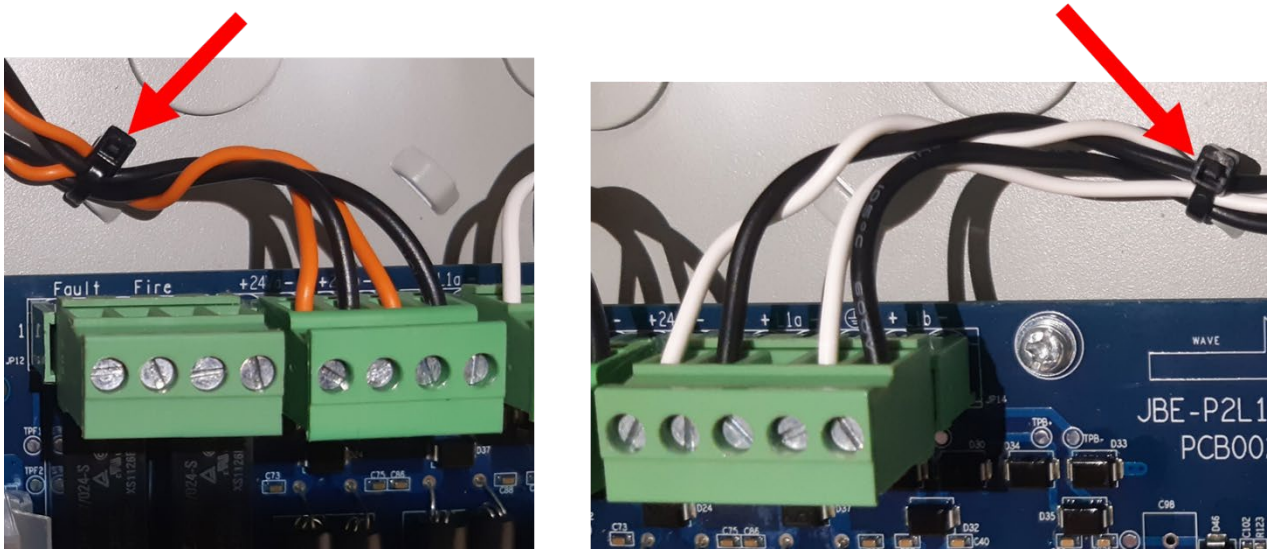


Figure 7: Illustration of Secured Wiring

4.2.4 Fitting the batteries

This product shall be used only with the approved battery types shown. Note that the appropriate battery size depends on whether the optional battery box JBE-BAT has been installed or not:

a) System with primary cabinet only (6.3 mm Faston tab terminals)

- 2x Yuasa NP7-12LFR (7 Ah of C20 capacity)
- 2x Yuasa NP12-12FR (12 Ah of C20 capacity)

b) System with optional battery box (Ø5 mm ring terminals)

- 2x Yuasa NP17-12IFR (17 Ah of C20 capacity)

Use always new batteries in configurations of two (2) identical capacities to provide adequate power for standby use. Do not mix different battery capacities. Observe the battery manufacturer's recommendation on shelf life and expected service life.

Note that batteries pose severe hazards. Read the safety manual of the batteries before handling them.

In order to install the batteries:

1) Remove the screws of the battery holder brackets

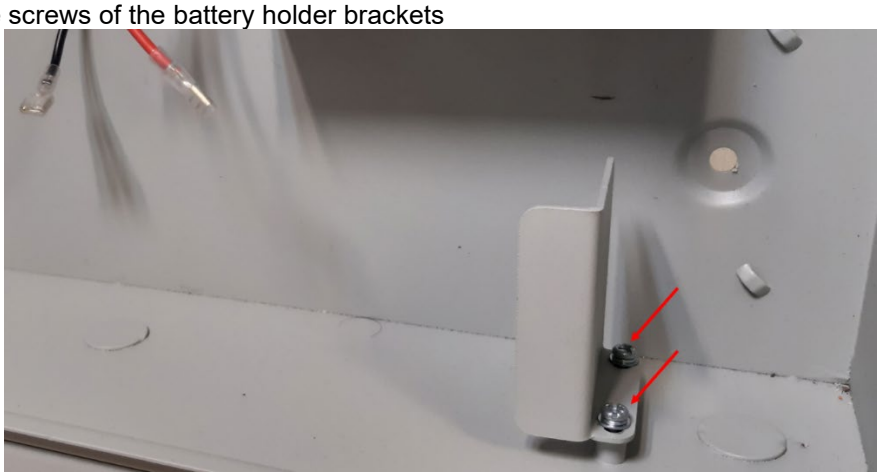


Figure 8: Battery Holder Brackets

2) Insert the batteries as shown in the pictures below.
3) Insert again the battery holder brackets. Tighten screws thoroughly.
4) Connect the battery cable terminals
5) Verify the temperature sensor is placed near the batteries to provide adequate temperature feedback to the charging circuit.

Figure 9: Battery Connection Locations for 7 & 12 Ah

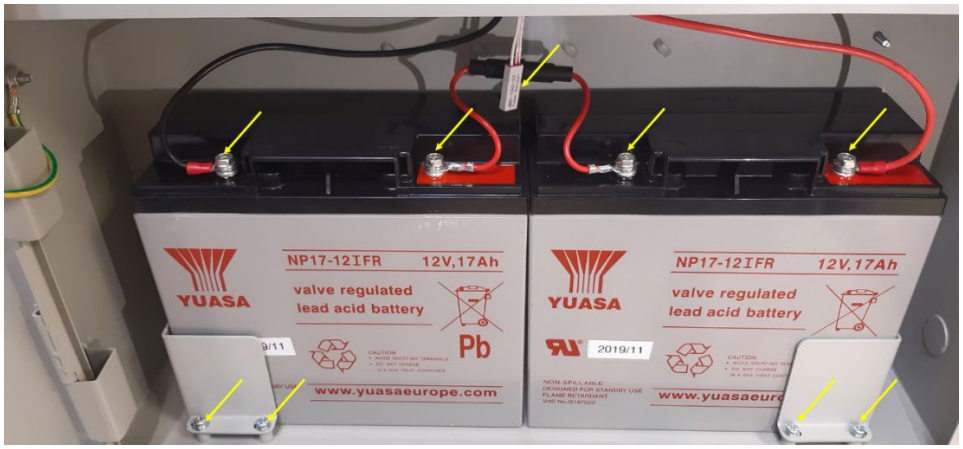


Figure 10: Battery Connection Location for 17 Ah

4.3. Commissioning using the Wizard

The Draco fire panel features a commissioning wizard. This wizard will guide the installer step-by-step to achieve a functional basic configuration. More sophisticated configurations can be achieved by exercising the configuration options described in section 5.5. The commissioning operations are restricted to user access level 3 and shall be conducted by trained operators only.

Before starting a commissioning, verify that the steps described in section 4.2 have been completed. That is, that the fire panel is safely wall-mounted, connected to all field wiring and energized.

4.3.1 Initiating the wizard

In order to initiate the commissioning process:

1) Push the home button
2) Push F5 “Install”. The system will prompt for the level 3 password (the default password to access this level is 1111111111).
3) Select the first option in the menu (1.Wizard).
4) Select the first option in the menu (1.Install).

The wizard will guide the user through the following steps:

4.3.2 Auto-registration of loop devices

This routine will scan the detection loops and will identify all addresses connected, in a process that can take 2 minutes.

Verify that all the devices planned in the installation have been detected.

4.3.3 Assign devices to zones

After auto-registration, all devices will have been assigned to zone 1. Use this menu to select the desired detection zone for each initiating device.

4.3.4 Set address descriptions

Enter a brief description of the location for each loop device. This information is aimed for a quick identification of each loop device and will be presented in the main screen in case of a fire or fault.

4.3.5 Assign outputs to activation groups

After auto-registration, all output devices will have been assigned to output group 003. Assign outputs to group 001 (EN 54 Sounders), group 002 (EN 54 Fire routing) or to groups 003 to 400 (freely programmable).

Note that, in a default configuration, the output group 003 does not have an activation rule configured. Therefore, alarms will not activate them unless and advanced rule is programmed from the install menu.

4.3.6 Change passwords

Select the desired passwords for user access level 2 and user access level 3.

5 Operation instructions

5.1. General indications

This chapter will provide detailed instructions on how to operate the fire control panel. The same user interface in the panel will provide incremental functionality for each user access level. Read the instructions carefully before attempting to operate the panel.

5.1.1 Visual indications

The Draco fire control panel provides eleven (11) system status LED indicators and a keypad consisting of a total of thirty-one (31) soft function keys. All user input is managed through the function, alpha numeric keypad or control keys on the front of the Draco panel.

5.1.1.1 LED indicators

The following figure and table detail the information on the definitions of the panel LED indicators. The Draco panel features a simple, icon-based method to communicate the key events of the panel as illustrated in Figure 11

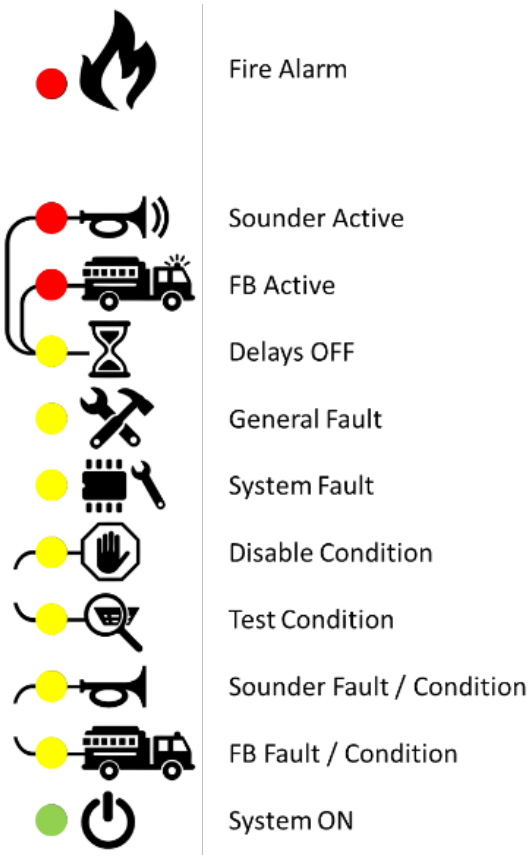
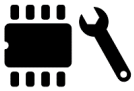


Figure 11: LED Indicators

Table 4 provides a detailed explanation of the visual indications on the Draco user interface

Table 4: LED Indicators

Icon next to the LED	LED name	Color	Status	Indication
	Fire alarm	Red	Steady ON	The panel is in “Fire alarm” state
	Sounders ON	Red	Steady ON	The sounder outputs are ON
			Blinking	The sounder outputs are in delayed activation and will activate automatically after the delay time has expired.
	Fire brigade ON	Red	Steady ON	The FB outputs are ON
			Blinking	The sounder outputs are in delayed activation and will activate automatically after the delay time has expired.
	Delays OFF	Yellow	Steady ON	The delays to outputs are active. I fan alarm is processed, SND and FB outputs will have a delayed activation.
			Blinking	The system is under delayed activation state. SND and/or FB outputs will activate automatically after the delay time has expired.
	Fault	Yellow	Steady ON	The system is in fault functional condition.
	System fault	Yellow	Steady ON	The CIE has detected a major malfunction in one of its subsystems.
	Disable condition	Yellow	Steady ON	There are disabled elements in the system.
	Test condition	Yellow	Steady ON	The CIE is under test functional condition. There is at least one element under test.
	Sounder fault/disable/test	Yellow	Steady ON	One or more sounder have been disabled or are under test
			Blinking	There is a fault affecting sounders.
	FB output fault/disable/test	Yellow	Steady ON	One or more FB outputs have been disabled or are under test
			Blinking	There is a fault affecting FB outputs
	Power ON	Green	Steady ON	The CIE is supplied with power (from mains or from the battery)

5.1.1.2 LCD user Interface

The Fire panel's LCD screen provides multiple windows, which will present information prioritized depending on the type of events detected in the system. The same LCD screen will be used to present the end user with menu options.

The screen is segmented in the following windows (shown in Figure 12):

1) Permanent system status window. This window provides:
   a. A cumulative summary of events present in the system for the Alarm, Fault, Disabled and Test categories.
   b. Status of the battery
   c. The current detector sensitivity profile.
   d. Date and time of the system

2) Flexible function ribbon: This ribbon will change in each situation, indicating the functionality of the F1-F6 keys below.

3) Flexible display area. This area is where the navigation menus will be displayed. Also, where the alarm, fault, test and disable screens will be presented

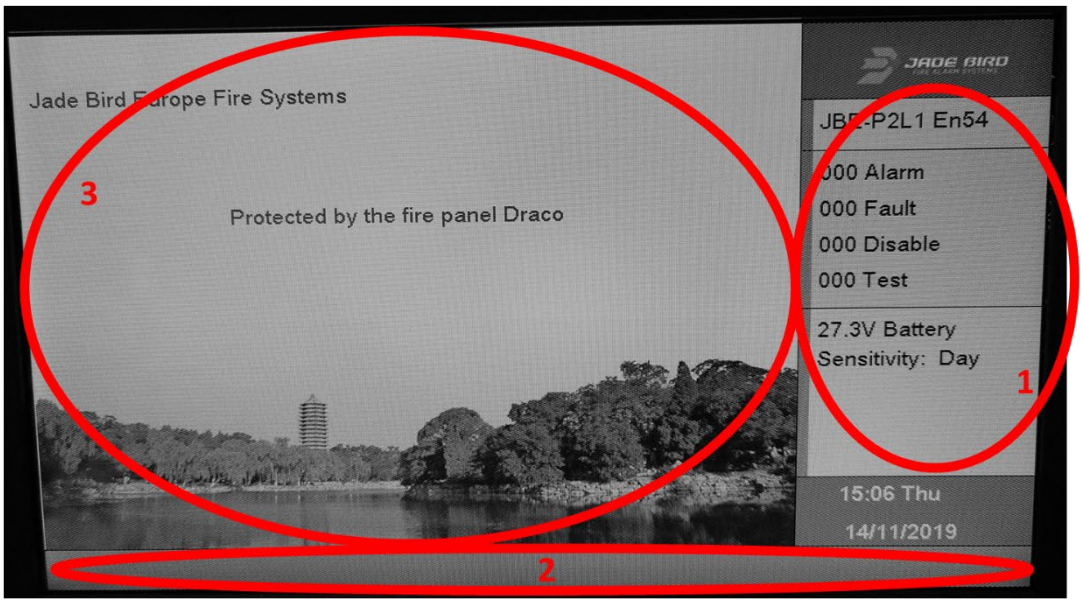


Figure 12: Quiescent screen

5.1.2 Control Keys

The Draco panel features soft buttons and alphanumeric keys which allow users to navigate the system directly from the keypad, even when they are wearing work gloves.

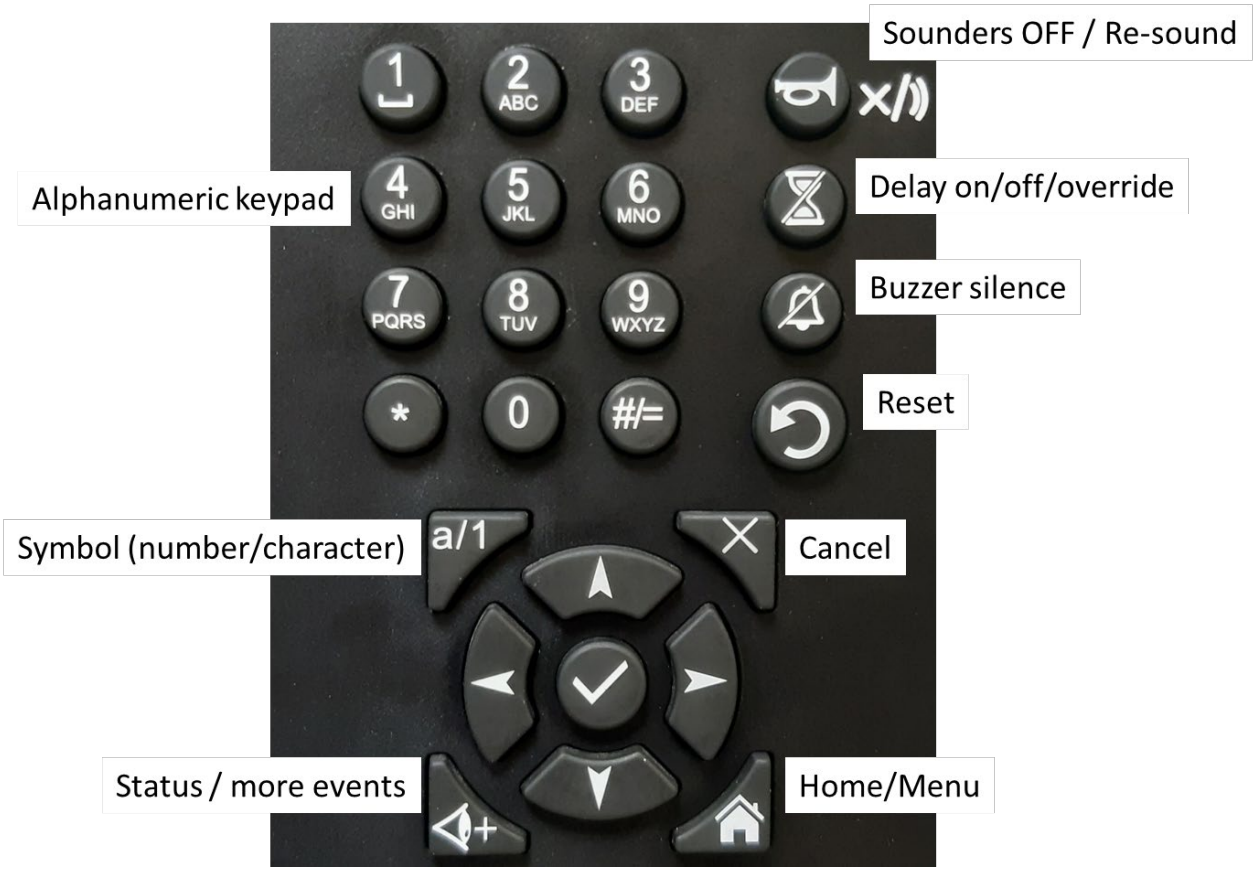
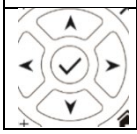


Figure 13: Control Keys

Figure 14: Function Keys

Table 5: Control Keys

Icon	Description	Function
	Sounders OFF / re-sound	- Silence sounders when they are active - Re-activate sounders after they have been silenced - Override sounder's delay, when they are in delayed activation state.
	Delay on/off/override	Activate/deactivate the output delays
	Buzzer silence	Silences/mute the buzzer of the fire panel
	Reset	Resets the active events and returns the fire panel to quiescent functional condition.
	Symbol (number/character)	Change/switch between symbols and characters in text entry screens
	Status/more events	View a summary of the status of the system
	Home/Menu	Present the main menu
	Cancel	Cancel user entry and return to menu screen.
	OK/enter	OK/confirms the selected functions
	Alphanumeric keypad	Alphanumeric keypad for a convenient entry of text, numbers and special characters
	F1-F6 Function keys	Flexible function keys. Their function in each screen is defined in the bottom ribbon of the LCD screen.
	Navigation keypad	Menu navigation

5.1.3 Acoustic Warnings

The panel will send out the following acoustic signals to notify the user about the occurrence of significant events in the panel. Note that the alarm signal takes precedence over the fault signal.

Table 6: Fire Panel Acoustic Annunciators

Buzzer signal	Description
Fast beep: The buzzer sounds 3 times per second	The panel is in fire alarm condition
Slow beep: The buzzer beeps once per second	The panel is in the fault condition

5.2. Description of user access levels and default login passwords

The access to certain functions of the panel is restricted to different user levels to avoid unauthorized operations.

The main screen will prompt for a password when the user attempts to exercise a function that requires an access level above the currently granted level of access.

The fire panel will automatically revert to user access level 1 after 30 seconds of inactivity. This timeout period can be extended temporarily by activating the “commissioning mode” with user access level 3.

Table 7: Access Levels and Passwords

Access level	Personnel/ designated users	Password required	Function
1	User access level 1 - First responders	No password needed	This level allows public users to view ongoing events in the panel and perform basic operational tasks.
2	User access level 2 - Trained operator	YES Default: 111	This level allows authorized operators who have been trained to carry out designated operations on the control panel.
3	User access level 3 - Installer Maintenance /commissioning personnel	YES Default: 1111111111	This level allows designated users to either run full system configuration or regular maintenance tasks.
3.1		The panel’s physical key	Installation and maintenance

5.3. Operations available to all users (access level 1 and above)

This chapter describes the functionality accessible to the building's first responders, who are considered a general public user with training and responsibility for initial investigation of incidents related with the fire system. These functions can be exercised without a password.

5.3.1 Silencing the buzzer

To silence/re-activate the buzzer from the panel in situations as alarm, fault or test, the user can press the buzzer silence/acknowledge key to silence the buzzer. To re-activate the buzzer, press the same key again to re-activate the buzzer.

Users can review all previous and ongoing event information from the View menu by pressing either control keys (refer to Figure 13) or function keys (refer to Figure 14).

5.3.2 View Menu

Under View menu, users will be able to review and go through a variety of historic events, zone and loop status, along with general system information and date of the last configuration.

To access the View menu, press the Home key and then F1. To return to the previous interface from the displayed sub-menu, press F6 to exit. The View menu will appear with the following

The sub-menu choices from the Report menu is as follows:

0. View event log
1. View faults
2. View disablements
3. View zone under test
4. View addresses linked to a zone
5. View zone status
6. View device status
7. View addresses used in a loop
8. View address descriptions
9. View system composition and date of last configuration

Once the user is in View menu, the following sub-menus can be accessed, by pressing the corresponding number in the keypad on the panel.

5.3.2.1 View event log

Press the Home key and then press F1 to enter the View menu, then press 1 to enter this sub-menu. The following choices will be displayed:

1. All events
2. Alarms
3. Faults
4. Operator actions
5. I/O log
6. Detector analog acquisition

5.3.2.1.1 All events

Press 1 to enter the sub-menu All events. All of the events are displayed chronologically from newest to oldest.
F1 stands for the number of the output group, press F2 to return to the first page, press F3 to print out the event log (if the optional printer is attached), press F4 to return to the previous page, press F5 scroll down to the next page, and press F6 to exit the current interface.

5.3.2.1.2 Alarms

Press 2 to enter the sub-menu Alarms. All the Alarm events are displayed chronologically from newest to oldest.
F1 stands for the number of the output group, press F2 to return to the first page, press F3 to print out the event log (if the optional printer is attached), press F4 to return to the previous page, press F5 scroll down to the next page, press F6 to exit the current interface.

The format of the alarm log display is:

DD/MM/YYYY HH:MM:SS Zaaa b-ccc Device Category Alarm

Where:

DDD/MM/YYYY is Day/month/year
HH:MM;SS is hour:minute:second
Zaaa is the Zone number
b is the loop number
ccc is the device address
Device Category is the category of device (MCP, Smoke, etc.)

5.3.2.1.3 Faults

Press 3 to enter the sub-menu Faults. All the Fault events are displayed chronologically from newest to oldest.
F1 stands for the number of the output group, press F2 to return to the first page, press F3 to print out the event log, press F4 to return to the previous page, press F5 scroll down to the next page, press F6 to exit the current interface.

5.3.2.1.4 Operator actions

Press 4 to enter the sub-menu operator actions. All of the Operator Actions are displayed chronologically from newest to oldest.
F1 stands for the number of the output group, press F2 to return to the first page, press F3 to print out the event log, press F4 to return to the previous page, press F5 scroll down to the next page, press F6 to exit the current interface.

5.3.2.1.5 I/O log

Press 5 to enter the sub-menu I/O log. All the I/O events are displayed chronologically from newest to oldest.
F1 stands for the number of the output group, press F2 to return to the first page, press F3 to print out the event log, press F4 to return to the previous page, press F5 scroll down to the next page, press F6 to exit the current interface.

5.3.2.2 View faults

Press the Home key and then press F1 to enter the View menu, then press 2 to enter this sub-menu. The event log related to faults is chronologically listed together with the detailed specification on the device in fault and the type of fault. On the top of the screen, the sum of events in fault is indicated.

Press F1 to return to the first page, press F2 to view previous page, press F3 to view next page, press F4 to page up, press F5 to page down, press F6 to exit.

5.3.2.3 View disablements

Use this menu to obtain a description of the active disablements.

Press F1 to return to the first page, press F2 to view previous page, press F3 to view next page, press F4 to page up, press F5 to page down, press F6 to exit.

5.3.2.4 View zones under test

This menu will show the list of zones which are under test mode. Note that a zone under test is not in service for fire detection.

Press F1 to return to the first page, press F4 to page up, press F5 to page down.

5.3.2.5 View addresses linked to a zone

Press 5 to enter the sub-menu to view addresses of loop devices assigned under designated zone(s). Users can either enter the number of the zone by pressing the numeric keypad or press F2 or F3 to change the zone. To exit the current window press F6.

Once the correct zone the user desires to access has been entered, the list of devices assigned to this zone is displayed by the format of: Loop number-Device address (range).

5.3.2.6 View zone status

Press 6 to enter the sub-menu to view the status of zones. In this sub-menu, all the zones that are registered in the panel are displayed starting from zone 001 along with their status (Normal/Fault/Alarm).

Press F1 to review the first page, press F4 or F5 to page up or down through the list of zones, press F3 and enter the zone number from numeric keypad to access the detailed information/data on a specific zone and press F6 to exit.

In the single zone mode, the F1 will clear the selected zone, F2 or F3 will change the zone number, F5 confirms the numeric entry, F6 exits the sub-menu and F4 allows the selection of a batch.

In the batch mode, press F1 to jump to the first page, press F4 to page up the list and to page down to the next page, press F5. To exit the current interface, press F6. To return to the single mode press F3.

5.3.2.7 View device status

Press 7 to enter the sub-menu to view the detailed status of devices. The information about the devices is displayed as loop number-device number, zone number, status (Normal / Fault / Alarm) and device description.

Press F1 to move back/return to the first page, press F2 to review the maintenance detail from the company who carries out the maintenance work. Press F3 to enter sub-menu Single view mode, users can enter the loop and address of interest manually from the numeric keypad. Under this sub-menu, by pressing either F2 or F3, user can change the address of the device. When pressing F4 Batch, users can view the status of devices listed as a batch/group, to scroll to the previous page, press F4, to scroll down to the next page, press F5. To exit the current interface, press F6.

5.3.2.8 View addresses used in a loop

Press the Home key and then F1, press 8 to enter the menu View addresses used in a loop. Manually enter the loop number from the numeric keypad, press either F2 or F3 to change the loop the user would like to access.

All the addresses registered in the loop will be grouped by device type, followed by the quantity of devices and the corresponding addresses in the loop-address format. The final information is the total number of devices on the selected loop.

5.3.2.9 View address descriptions

Press the Home key, then F1 and then 8 to enter this menu to view descriptions of all registered addresses. Users can manually enter the loop and address number to review the detailed descriptions. Pressing F2 or F3 will move forward or backward in the list of addresses displayed, pressing F6 exists the menu.

5.3.2.10 View system composition and date of last configuration

Press the Home key then the F1 and enter 0 on the keypad to enter the view system composition sub-menu. The data of this menu displays in the format of:

X Loop Card X Loop
X Power card
Date of last configuration update: DD/MM/YYYY

Where X is the number of cards in the system.

5.4. Operations available to users with access Level 2 and above

This chapter describes the functionalities of the panel that an operator with user access level 2 can operate. This level of access is normally granted to users trained in the usage of fire systems. The operator level is restricted by a three-digits password, the default password to access this level is 111. Designated user can perform tasks by using both the functional keys and the alphanumeric keypad.

This user level will allow the operator to access all lower level menus and information and add the Operate and Report menus by use of the 3-digit password.

5.4.1 Reset

To reset the Draco panel and clear all the current system settings/events, press Reset button to go back to original standby condition. The user interface will prompt for the operator password before performing this action.

5.4.2 Activate Delays

User can press the Delays ON/OFF button to activate/deactivate the sounder and fire brigade output delays. The user interface will prompt for the operator password before performing this action.

Note that the day/night schedule can also activate and deactivate the delays at a fixed schedule. Manual and scheduled delay activation modes are compatible with each other.

5.4.3 “Operate” menu tree

Under the Operate menu, personnel with user access level 2 can perform tasks related to testing and disablements, such as run tests on zones, output groups, keyboard and indicators, and disable zone, device or output groups accordingly. This menu also gives access to adjusting the date and time for the panel. Users can also review the serial numbers and firmware versions of the control panel from this menu.

The sub-menu choices from the Operate menu is as follows:

1. Test zone
2. Test output group
3. Keyboard test
4. Indicators test
5. Disable zone
6. Disable output group
7. Disable device
8. Set time
9. View serial numbers and firmware versions

5.4.3.1 Test zone

This menu allows setting zones in and out of the test functional condition.

After entering user access level 2 password, use the directional keypads to move to the desired zones and select 1 for yes and then press the Confirm key to test the designated zone(s).

When an alarm is received from a zone under test, it will be presented for 10 seconds in the panel’s user interface and it will disappear. Alarms from zones under test will not activate outputs. These alarms will be logged in the event log.

5.4.3.2 Test output group

This menu allows testing the activation of an output group. A test will activate temporarily all the output devices associated to a group.

After entering user access level 2 password, enter test output group from operate menu. The operator can select a specific output group (sounder group, fire routing group) from the main sub-menu by entering in a 1 for yes using the directional keys and the numeric keypad. A programmable group or field devices can be selected by pressing F2 or F3.

5.4.3.3 Keyboard test

To test the status of the keyboard, enter the Keyboard test menu, as you press all the function and alphanumeric keys from the panel they will be indicated on the display.

To exit the current interface, press long F6 and the test will finish.

5.4.3.4 Indicators test

Enter the Indicators test menu, the system will immediately test the LED indicators, buzzer and all elements in the LCD screen. This will allow an inspection of the indicator activation.

After running the tests, the panel will return the Operate menu.

5.4.3.5 Disable zone

Use this menu to set zones in and out of the disabled functional condition.

Enter the Disable zone menu, the list of zones available in the system will appear on the left side of the interface. The column current indicates for each zone if they are currently disabled.

Selecting 1 will disable the corresponding zone. Select 0 to enable the zone again. Note these operations require confirmation.

Zone disablements will be indicated with the general disabled LED and in the main screen.

Device faults and alarms will not be processed from disabled zones.

5.4.3.6 Disable output group

This menu allows disabling a specific output group. Disabling an output group implies it will not activate upon reception of alarms and that faults form the associated output devices will not be ignored.

To disable a group, use “1” in the user interface. Groups can be re-enabled by entering 0 (No).

Group disablements will be indicated with the general disabled LED and in the main screen.

If either the SND or the FB groups are disabled, the specific SND/FB condition LEDs will also activate permanently to indicate the presence of disablements affecting this output group.

5.4.3.7 Disable device

This menu allows disabling the devices mapped to specific loop addresses. To disable a specific device, the operator shall enter its loop and address number.

Note regarding disablement of points: When all initiating devices in a zone are disabled, the zone becomes disabled.

The panel will remain in disabled functional condition as long as there is one disabled device or zone.

5.4.3.8 Set time

Enter the Set time menu to adjust the date and time of the panel by using the numeric and directional keypads, press F1 to clear the data, F5 to confirm and F6 to exit.

5.4.3.9 View serial numbers and firmware versions

Entering the View serial numbers and firmware versions menu, operators will be able to view the serial numbers and firmware versions of the display panel, loop card, power card and display key.

Pressing F3 will print the information on the optional printer, F6 will exit.

5.4.4 “Report” menu tree

Under the Report menu, operators can perform and retrieve detailed data related to the system and the field devices. Operators can also print event log and save configuration or event log to USB from this menu. The data users can retrieve from the system mainly consist of status and report from field devices signal, loop state signal and field devices. The Report menu also allows operators to view advanced programming configured in the control panel.

Operators can access the report menu by pressing the Home key and then F3, to navigate the menu and its sub-menus, users can use the alphanumeric navigation keypad.

The sub-menu choices from the Report menu is as follows:

1. Print Event Log
2. Save Config or Event log to USB
3. Field device type status
4. Product serial numbers
5. Loop state signal report
6. Field device raw data report
7. Field device state signal value
8. View advanced programming

5.4.4.1 Print event log

The Print event log menu allows the operator to send to the printer selected information. The following filters are available:

- All events
- Alarms
- Faults
- Operator actions
- I/O log

Event log information from specific time windows can be selected by entering the start and end time.

5.4.4.2 Save configuration or Event log to USB

Under this function, the operator can upload/copy the configuration of the panel and event log to the USB by selecting the listed options:

- Load descriptions
- Load registration info
- Load zone info from USB
- Load ProMD2 from USB
- Save descriptions
- Save registration info
- Save zone info to USB
- Save ProMD2 to USB

5.4.4.3 Field device type status

This menu displays the current type status information of the selected device(s) from the designated loop.

5.4.4.4 Product serial numbers

From this menu, operators will be able to access the product serial numbers (PSN) and the serial number of the system software.

5.4.4.5 Loop state signal report

Loop state signal can be displayed in two formats: Table or plot. In both formats, the data related to the state of every device on the selected loop is listed.

5.4.4.6 Field device raw data report

Under this menu, users will have all the 10 bytes data from the field devices of the panel. This menu can be used for diagnostic purpose. There are two formats available to view the data for users to choose from, one is decimal format and the other is hexadecimal format.

5.4.4.7 Field device state signal value

From this sub-menu, operators can review the “BkValue (mA)” which represents the background current (refers to the loop current under “low voltage” period, when no device provides the answer current) and “CurValue (mA)” which stands for the answer current from the designated device(s). The answer current is how the device provide the (status normal, trouble, alarm).

5.4.4.8 View advanced programming

After entering the advanced programming menu, user can view the actions/logic that are currently programmed in the panel. Each action can be viewed by pressing F2 or F3 to index the action. See section 0 for a description of the advanced programming syntax.

5.5. Operations available only to users with access level 3

This section describes in detail what functionalities of the panel that a user access level 3, either installer or maintenance/commissioning personal, can have. For this user access level, the menus for Adjust and Install are available.

5.5.1 “Adjust” menu tree

The “Adjust” menu tree contains operations typically restricted to personnel trained in the installation & maintenance of fire systems. These operations will typically be used only during commissioning, expansion or maintenance of the fire installation.

To enter the adjust menu, the 10-digit password for user access level 3 is required. By pressing the Home key and then the F4, user can navigate the “Adjust” menu tree by using both alphanumeric keypad and function keys.

The sub-menu choices from the Adjust menu is as follows:

1. Individual device registration
2. Set address description
3. Assign devices to zones
4. Delays and linkage to SND/FB by zone
5. Set loop class (A or B)
6. Assign device to activation group
7. Enter maintenance company details
8. View analog value curve of detector
9. Configure Day/night mode
10. Set printer

5.5.1.1 Individual device registration

The operator can manually enter the loop number, address/end address and the type of device to either register or unregister. The type of devices is classified under 8 categories for users to choose from when defining the type of device.

5.5.1.2 Set address description

An operator can add a description for every device manually by entering the sub-menu Set address description. Both the numeric and alphabetic keypad is available on the interface for the user to choose from.

5.5.1.3 Assign devices to zones

By entering this sub-menu, users can assign specific devices to designated loop. The column Current indicates the current zone the device has been assigned to. A new zone number can be assigned to each device by changing the number under the Set column and pressing F5 to confirm the changes.

5.5.1.4 Delays and linkage of SND/FB by zone

Under this sub-menu, users can program/set the delay on either sounder and fire routing for all zones or set sounder and fire routing delay separately by zone. User can also link/unlink either sounders or fire routing per zone. The functions available from this sub-menu are listed as below:

The programmed time range for both sounders and fire routing delay is from 0 to 600 seconds and by selecting either 0-NO or 1- YES, user can resound sounders if new zone is in alarm:

To link/unlink sounders or fire routing by zone when entering from the sub-menu Link/unlink sounders by zone and link/unlink fire routing by zone, users can choose whether to activate or not the group depending on if there's been an alarm event triggered either by manual call point or detector.

5.5.1.5 Set loop class (A or B)

This menu will allow selecting between Class A or B wiring.

The Draco fire panel supports up to 2 loops in looped (Class A) configuration. When a loop is configured in class A, the fire panel will monitor the continuity of the loop and report fault if there is any issue in the wiring from side A to side B.

Loops configured in class B will not report fault if the communication bus is not in looped topology. Therefore, it will tolerate the usage of stub topology.

Note that local regulations may require that no more than 32 devices are lost in case of a single wiring fault. Therefore, class B wiring topology may only be used in smaller installations.

Class A is the most robust wiring topology and thus the recommended topology for all installations.

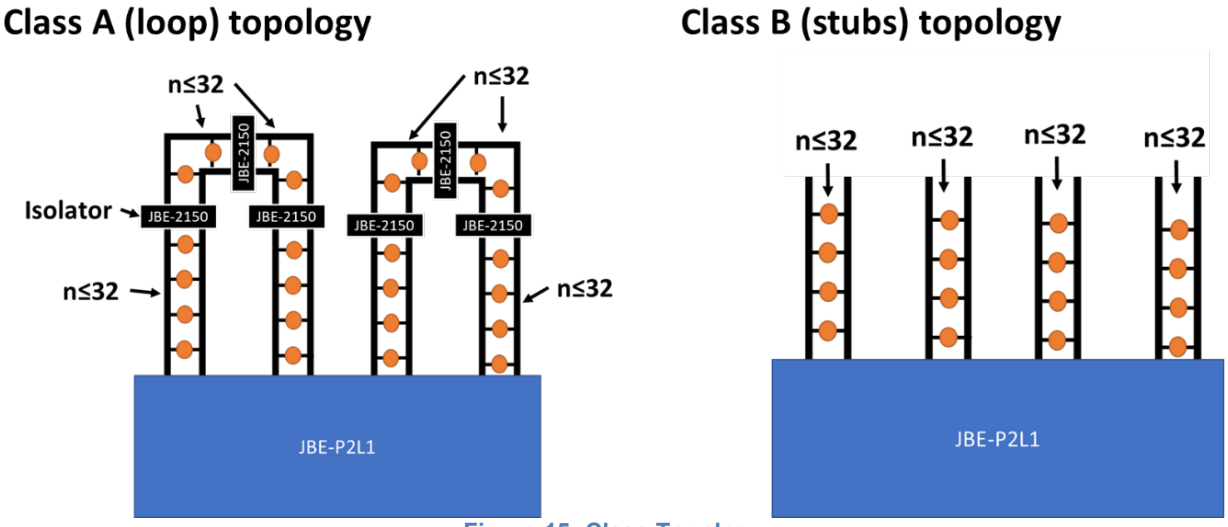


Figure 15: Class Topology

5.5.1.6 Assign device to activation group

Under this sub-menu, user can assign each output device to designated group in activation.

In this menu, the currently assigned output group for each device is listed under the “Current” column.

Note the following pre-assigned output groups:

Group 001: Sounders
Group 002: Fire Routing
Groups 003-400: Groups freely programmable in “advanced configuration”

5.5.1.7 Enter maintenance company details

From this sub-menu, users can enter the details of the company that performed the maintenance work on the panel. The information entered in this field will be visible to general public.

5.5.1.8 View analog value curve of a detector

From this sub-menu, users can review the analog value either in table or plot format from all the detectors.

This menu can be used to investigate how certain processes (smoke or heat generated by ovens, heaters, furnaces…) affect the reading of detectors, even if they do not reach the alarm threshold.

For sites with installations prone to generate false alarms, it is a good practice confirming that the selection of detector type and location is robust to nuisance alarms.

5.5.1.9 Configure Day/Night mode

Draco allows configuring a schedule to adjust the fire panel’s settings following the changes of activity in the building. In particular, the following tasks can be scheduled:

- Activation and de-activation of sounder and fire routing delays
- Change of sensitivity of each detector

Each day of the week can have a delays “activation” and delays “deactivation” event at the scheduled “on” and “off” moments. Note that the “delays on” moment is not necessarily before the “delays off” moment. There is no restriction on the switchover times configured.

Note that a “delays on” or “delays off” slot of the schedule can be skipped by filling its time as “--:--“. Use the key F4 to enter the null values “--:--“. This can allow, for example, to configure the panel to deactivate the delays each day at midnight, but never to turn them on. This is compatible with guards turning them on manually when they arrive on duty.

The screen to configure the schedule divides the week in up to 14 time periods. Each time period will also be assigned one of the following 3 profiles:

L1 – “Day” profile
L2 – “Night” profile
L3 – “Special” profile

Typically, the “Day” profile indicates the period of time when the building has more activity and/or it is warded. The “Night” profile is used for periods of time when the building is unoccupied and the “Special” profile is used for singular activities such as cleaning, maintenance. However, these profiles are fully configurable as it can be shown below

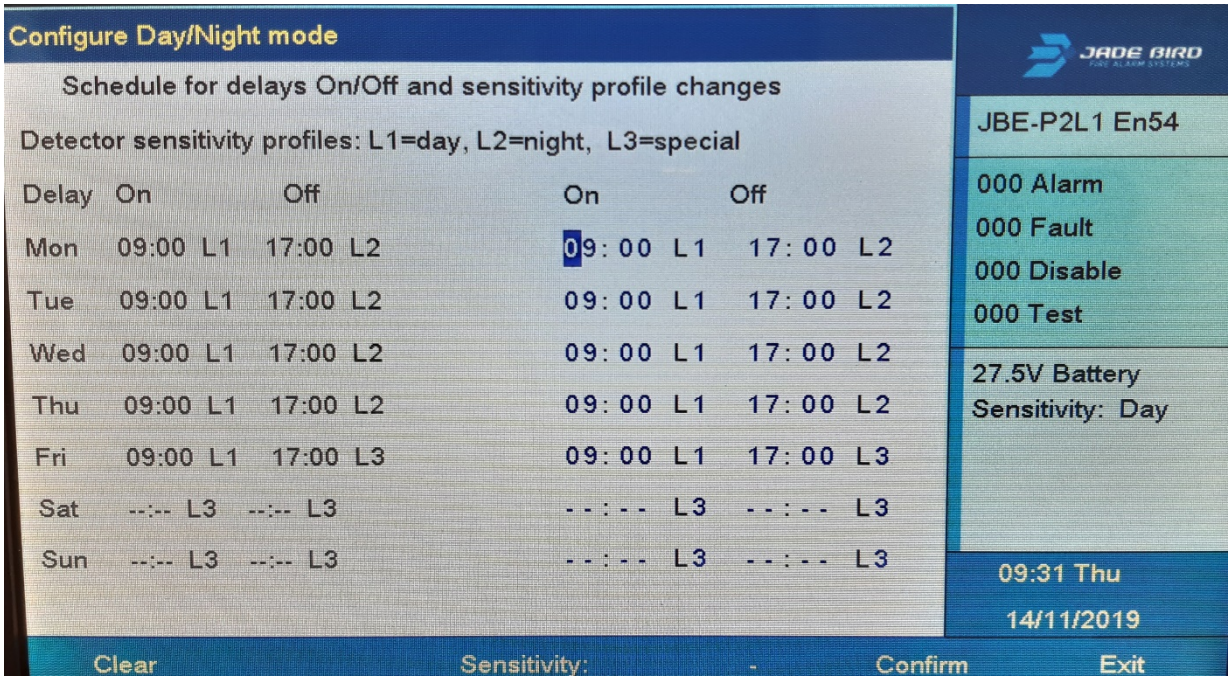


Figure 16: Day/Night Mode

Push “F3” to configure the desired sensitivity level of each detector for each profile. Refer to the detector’s datasheet to understand the details of each sensitivity level.

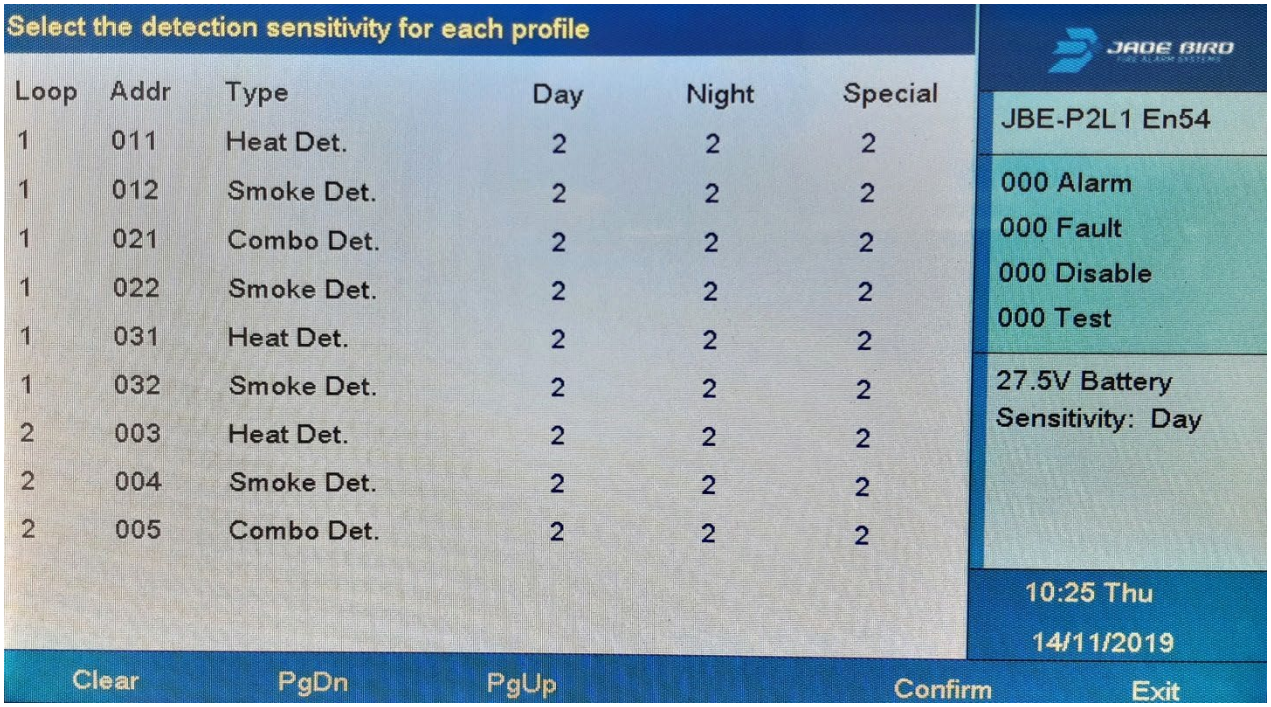


Figure 17: Detector Sensitivity Selection

5.5.1.10 Set Printer

The printer is an optional accessory to the panel. If the user doesn't require or need the additional printer box, in that case the printer configuration is not necessary. When the user chooses to add the additional printer box, the installer needs to configure the printer upon installation. Change the status (either On or OFF) by pressing F3 to switch on the printer. Under "current mode", either "dense" (F4) or "spaced" (F5) can be selected to change the spacing between the characters.

5.5.2 "Install" menu tree

Under this menu, users can operate all the tasks related to the system set up such as set password and language, operate auto-registration of the panel, update the USB firmware and configurate the system and so on. To enter the install menu, the 10-digit password from access level 3 is required. By pressing the Home key and then the F5, user can navigate the install menu by using both alphanumeric keypad and function keys.

The sub-menu choices from the Install menu is as follows:

1. Wizard
2. Auto Registration
3. Set Password
4. Set language
5. Set special operation mode
6. Enter advanced programming
7. Clear
8. USB firmware update
9. System configuration
10. Load configuration from USB

5.5.2.1 Wizard

From the sub-menu wizard, user can operate tasks such as install wizard or maintain wizard. After entering the sub-menu install wizard, user can operate the tasks available from the listed function of: Auto Registration, assign devices to zones, set address descriptions, Assign devices to activation group or set the password.

In the sub-menu maintenance wizard, user can view the event log, perform the keyboard test, perform the indicator test, test an output group or test zones.

5.5.2.2 Auto-registration

From this sub-menu, users can auto register the devices by entering the loop the designated devices belong to. Once the auto- registration is completed, the interface will be automatically switched to the quiescent interface.

5.5.2.3 Set password

From this sub-menu, users can change/setup both the operator and installer password.

5.5.2.4 Set language

From this sub-menu, users can select the system language from the list of languages available on the panel.

5.5.2.5 Set special operation mode

From this sub-menu, users can select the operation mode from either the EN 54 compliant mode or a commissioning mode to extend the screen timeout during installation.

The panel supports two operating modes: A general operation mode and a commissioning mode. In commissioning mode, the menu screen timeouts are extended for convenience of the technicians. Also, entering and leaving the commissioning mode is logged in the panel's history log. This allows interpreting correctly the alarms or faults that can be registered during a commissioning or maintenance operation.

Note that the panel shall not be left in commissioning mode when protecting the building.

5.5.2.6 Enter advanced programming

From this sub-menu, installers can program customized output activations to given combinations of inputs.

The panel allows configuring up to 598 actions. Each action will be composed by 2 parts: Inputs and Outputs.

"Inputs" refer to the combination of events that will trigger the corresponding output activation
"Outputs" refer to the activations which will be triggered when the criteria described in "Inputs" is fulfilled.

All actions programmed in the advanced programming are evaluated simultaneously and in parallel to the standard programming of the panel. When a given output group has been configured to be triggered by multiple actions, these are aggregated with an OR function. That is, if the criteria is fulfilled to trigger one of the actions activating an output, the output is activated. Additional actions cannot be used to inhibit output activations. In order to inhibit an output activation, the coincidence must be programmed within the action.

5.5.2.6.1 Programming the "Inputs" triggering an action

This menu allows aggregating up to 8 lines to define the action trigger.

Each input line includes the following elements

Zone: The source of the trigger. Panel zones are 001 to 400. Enter 000 to set "all zones".

Type of alarm: MCP, Detector or Input. The type of alarm which will trigger the action.

Number of alarms (1 to 4): This is the number of alarms in the defined zone and of the defined type which are required to trigger the action.

Relevance (or aggregation command) select AND / OR to define if the condition is sufficient to trigger the input (+/OR) or if it requires something else to happen (x/AND).

For example: Figure 18 below shows that the following inputs will trigger the actions:

2 Detectors from zone 001 OR
1 Detector from zone 002 AND 1 MCP from zone 002 OR
1 Input from zone 003

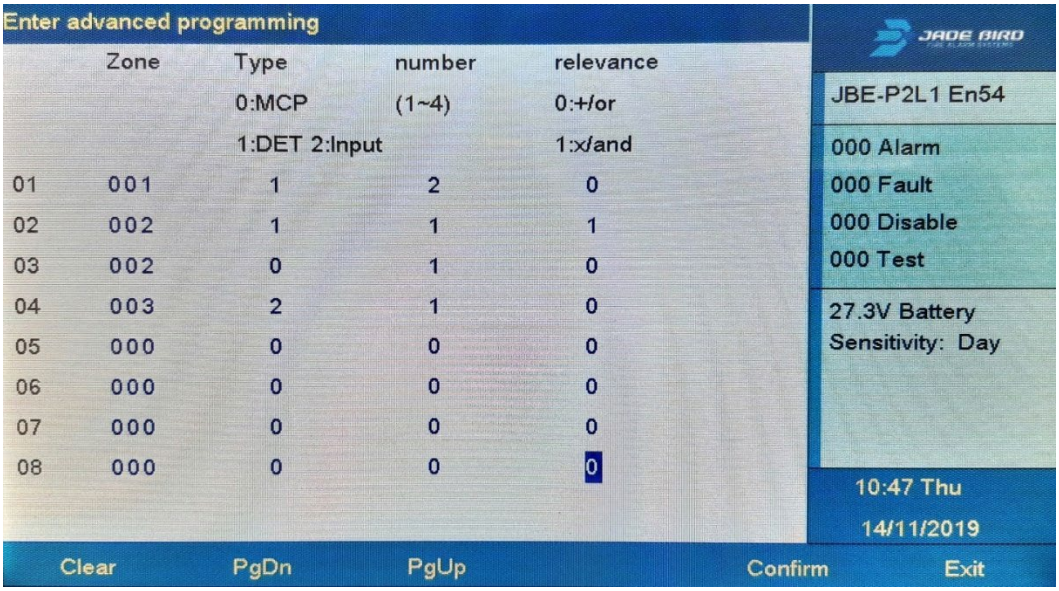


Figure 18: Example Input Action

5.5.2.6.2 Programming the “Outputs” triggered by an action

Up to 8 output groups can be activated by a single action. This includes the sounder (SND-001) and Fire Routing (FR-002) output groups.

For each activation, enter the following parameters

Activation group: Select the group to activate when the input rule is fulfilled. Choose between group 001 to 400.

Delay: Select the seconds of delay between the moment in which the input condition was fulfilled and the activation of the input. Note that these delays are fix and are not activated/deactivated by the delays on/off button. Select from 000 to 600 seconds of delay. Selecting 000 means immediate activation.

Hold: Populate this field if you want outputs to be active for just a brief period of time (up to 63 seconds). Select for how many seconds do you want the output to activate. Leaving the default value 000 means that outputs will activate for an indefinite duration (i.e. until the panel is reset).

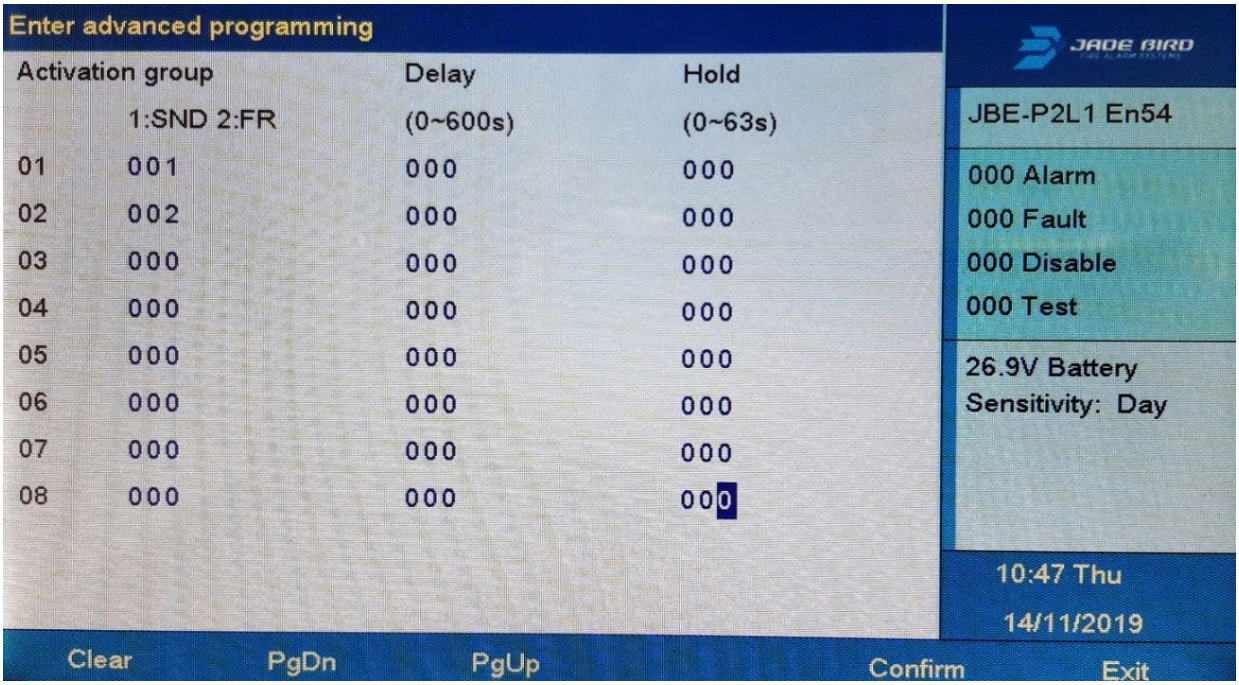


Figure 19: Example Output Action

5.5.2.6.3 Reviewing the action

Once an action's programming has been entered into the panel configuration, it can be reviewed in a single screen with the coding below:

Input scenarios combination = Output programs triggered

Where the input scenarios are coded as S(Zone, alarm type, quantity) and the programmed outputs programmed are coded as P(group number, delay, hold).

OR aggregations of inputs are coded with the addition "+" sign.
AND aggregations of inputs are coded with the product "x" sign.

That is: Scenarios S(x,y,z) are considered to return "1" if they are met and "0" otherwise. All output groups at the rightmost hand side of the "=" sign will be activated if the calculation of input functions returns "1".

5.5.2.6.4 Actions involving SND and FR output groups: unlinking them from zones

In the panel's default configuration, a single detector or MCP alarm in any zone will trigger the activation of SND and FB output groups.

If you require a more sophisticated action for these output groups (such as coincidence detection), unlink the activation of SND and FB output groups from the alarms in the affected zones. Otherwise, they will always activate with the first alarm. See section 0 for instruction on how to unlink SND and FB output groups from some or all zones in the fire panel.

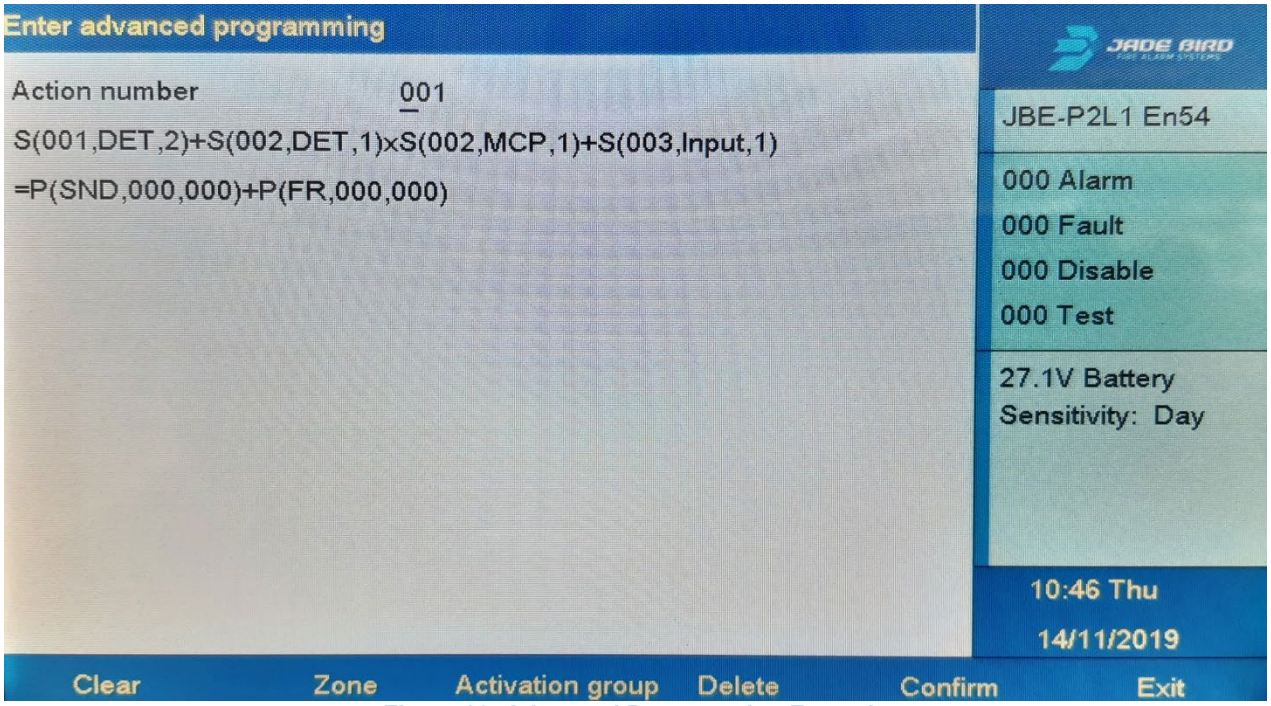


Figure 20: Advanced Programming Example

5.5.2.6.5 EN 54 Type “C” coincidence detection

The coincidence detection specified in EN 54 is a particular case of the advanced programming shown in this section. In type “C” coincidence detection, the panel enters into alarm functional condition at the reception of a first alarm. However, it does not activate its outputs until a pre-defined confirmatory signal is received.

To program a type “C” coincidence detection, define an action for each of the SND and FB output groups which requires two or more alarms to be processed prior to output activation.

Note that, as described in section 5.5.2.6.4, SND and/or FR output groups shall be unlinked from zones with type C confirmation, or the first alarm will activate them.

The following action implements a generic “type C” coincidence detection

S(000,DET,2)+S(000,MCP,2)+S(000,DET,1)xS(000,MCP,1)= P(SND,060,000)

That is, sounders will be triggered with 60 delay by the scenarios of

- 2 detectors of any zone or
- 2 MCPs in any zone or
- One detector AND one MCP in any zone.

Note that this configuration requires sounders to be unlinked from zones. See section 0 for details on how to unlink SND outputs from the default operation of panels.

5.5.2.7 Clear

Under this sub-menu, user can reset the previously configured descriptions, zone information, advanced programming and to load a factory setting to rest to factory mode.

5.5.2.8 USB firmware update

Users can update the firmware of the panel by using a USB memory drive. The usb bay is located in the interior of the fire panel.

Once the USB is plugged in, users can choose the type to upgrade from either normal or commissioning and to update either panel or image.

5.5.2.9 System configuration

From this sub-menu, users can configurate the system by operating on either loop card, loop, LED panel or power card.

5.5.2.10 Load configuration from USB

This feature will allow to load a complete fire panel configuration from a usb file. This feature will be implemented soon.

6 Operation in case of alarm

When the Draco fire panel receives an alarm, it will automatically:

- Indicate it audibly with the buzzer alarm indication
- Activate the general fire alarm indication
- Present the alarm screen
- Activate the fire relay and initiate the pre-programmed output activation sequence.

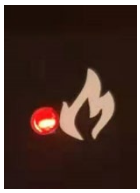
6.1. Panel's audible alarm indication

In case of alarm, the panel will make an attention-drawing beeping sound (3 beeps per second). This audible indication can be silenced by pushing the "panel silence" button.

6.2. Panel's visual alarm indications

6.2.1 The general fire alarm indicator

The general fire alarm visual indicator will activate immediately each time the fire panel enters into the alarm functional condition.



6.2.2 The alarm screen

In the event of an alarm, non-alarm indications in the main window of the screen will be replaced by the alarm screen. The alarm screen will always indicate the first zone which entered into alarm at the top field. If additional zones enter into alarm, these will be shown the window below.

The zones in alarm will appear sorted from the most recent event (top) to the oldest one(bottom). Therefore, the top field will always show the oldest zone alarm event and the field below will show the zone which entered into alarm most recently.

The window in the rightmost part of the screen will show the total amount of zones in alarm.

The full list of initiating devices which entered into alarm can be accessed with user access level 1 (no password) by pushing F1-"Alarms". While the panel is in alarm, other event types such as faults or disablement will only be presented in the LCD if interrogated using the function keys indicated at the bottom of the screen:

F1 - Alarms
F2 – Faults
F3 – Disablements
F4 – Test conditions
F5 – Interlocking (Input-output activation) messages

The rest of menus can be accessed normally, but the fire alarm screen will be presented again within 30 seconds of no activity in the user interface.

Figure 21: Fire Alarm Screen

6.3. Output activation – delay override

In the event of fire alarm, all outputs will activate as programmed automatically. That is, without any manual intervention.

There is a special case where sounders or fire routing outputs have a programmed delay configured. In this case, upon reception of an alarm, the fire panel will enter the “delayed activation” state. A “delayed activation” involves that sounders and/or Fire Routing outputs are inactive for a pre-defined period after the reception of an alarm. After being configured, delays can be manually activated and deactivated with user access level 2 by pushing the delays on-off button. They may also activate and deactivate periodically following a pre-defined schedule.

During the “delayed activation” state, the “delay ON” LED will blink together with the corresponding “Sounders ON” or “Fire routing ON” LED, indicating that these outputs will activate after the pre-programmed delay has expired.

The output activation delay can be cancelled (delay override) by pushing the “delays ON/OFF” button or the “sounders ON/OFF” button (no password is needed).

Note that the delayed activation can also be overridden by an alarm which has no delay programmed. Typically, MCPs are configured to initiate the alarm notification without delay (the panel configuration allows defining if delays apply to ¨MCP alarms or not). Therefore, MCPs can also be configured to override the delays.

6.4. Resetting the fire panel

The fire alarm condition can only be reverted by the reset operation. The reset operation is triggered by pushing the reset button and entering the operator or installer password.

The reset operation will revert the fire panel to the quiescent functional condition. That is, it will stop all the alarm indications and clear all the alarm events from the screen. Note that, right after the reset, the panel will re-evaluate the status of all its loop devices. Therefore, the system will immediately enter again into alarm status if fire stimulus (from detectors and/or manual call points) are still present.

7 Maintenance

7.1. Planned maintenance

7.1.1 Periodic inspections & maintenance

Most of local or regional fire regulations require that fire systems undergo periodic inspections performed by professionals. Contact a local specialized installation or maintenance company to execute the code-mandated inspections and ensure the panel is inspected at least quarterly.

The Draco fire panel has a rich feature set to support and shorten site inspections:

Under the “View” menu (see section 5.3.2), all users can read the event log and get a report on the active faults, disablement, test conditions…

Under the Operator menu (see section 5.4.3), users with access level 2 can test outputs, zones, the keyboard and visual indicators.

Under the “Report” menu (see section 5.4.4), users with access level 2 can get detailed information of the system configuration and diagnostics from field devices.

7.1.2 Battery Maintenance

The panel systematically monitors the charge level and the internal resistance of the attached batteries.

During periodic site inspections, maintenance personnel shall review the event log to verify there are no battery-related faults. Visually inspect the cables of the battery to ensure they are in good condition. In general, it is not necessary to conduct any additional measurement on the batteries.

Sealed lead-acid batteries do not require maintenance, but they have a limited service life. Replace batteries before exceeding the service life declared by the battery manufacturer. Dispose of old batteries according to local regulations.

7.1.3 Cleaning

Make sure the interior and exterior of the control panel is free from dirt. Perform periodic basic cleaning by using a cloth to dust the exterior. Do not use chemical products to clean the panel.

7.2. Corrective maintenance: Operation in case of fault

The fire panel is constantly monitoring its subsystems, power sources and all its configured loop devices. If any missing element or any malfunction is detected, the fire panel will enter the fault functional condition and it will provide detailed information about the event in the user interface.

When a fault is detected, the fire panel will:

- Activate the buzzer in fault mode (one beep per second)
- Activate the general fault LED (see section 5.1.1.1)
- Activate the fault relay output
- Present the fault screen in the LCD with a description of the fault
- Increment the fault counter in the LCD

7.2.1 Indication of common faults

Each loop device has a unique address composed by the loop number and loop address. Installers can also assign a text description to each loop device (i.e.: “MCP in the kitchenette”). In case a fault is processed for any loop device, this information will be presented in the main screen and it will be added to the event log.

When a common device fault is reverted (i.e. a removed detector is connected again), the panel will clear this fault indication and return to the quiescent functional condition. The event log will keep record of all faults detected.

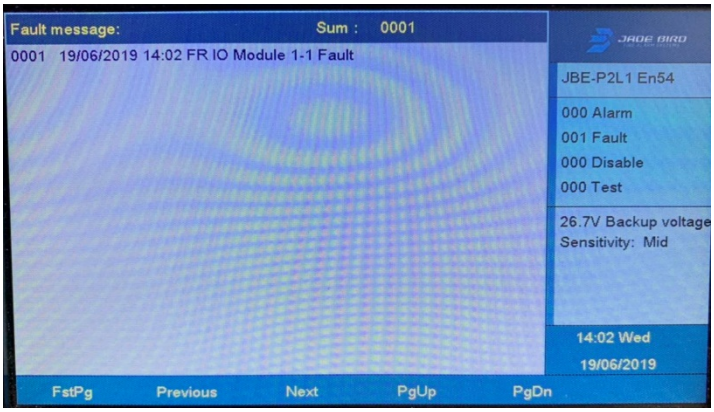


Figure 22: Fault Screen

7.2.2 Indication of faults affecting SND or FB outputs.

When a fault affecting the SND or FB outputs is detected, additional visual indicators “SND fault” and “FB fault” will activate blinking to indicate that these functions have been compromised. See section 5.1.1.1 for a description of the position of these LEDs.
SND and FB faults are unlatched and thus will be cleared automatically when the fault is resolved. The event log will keep record of all faults detected.

7.2.3 Indication of earth faults.

The LCD screen will indicate if any of the system’s buses has an unintended contact with the building’s electrical earth. Earth fault indications suggest a wiring defect. These shall be investigated and amended as soon as possible by professionals.

7.2.4 Indication of system faults.

When a malfunction is detected in one of the panel’s core subsystems, it will be additionally indicated by activating the “System fault LED” (See section 5.1.1.1). System fault indications are latched and will not be cleared until the fire panel is manually reset, even if the function has been recovered.

System faults are not expected to appear during normal operation. The system should not be considered reliable while it is indicating a system fault. Contact your maintenance company or technical support if a system fault is present in your system.

8 Menu Tree Structure

8.1. View menu (User access level 1)

Table 8: Menus accessible to user access Level 1

User access level 1 (no password) and above		
Menu level 1	Menu level 2	Menu level 3
View menu	1. View event log	1. All events 2. Alarms 3. Faults 4. Operator actions 5. I/O log
	2. View faults	
	3. View zones under test	
	4. View addresses linked to a zone	
	5. View zone status	
	6. View addresses used in a loop	
	7. View device status	
	8. View addresses used in a loop	
	9. View address descriptions	
	0. View system composition and date of last configuration	

8.2. Operate & Report menus (User access level 2)

Table 9: Menus accessible to user Access Level 2

User access level 2 (L1 password) and above	
Menu level 1	Menu level 2
Operate menu	1. Test zone 2. Test output group 3. Keyboard test 4. Indicators test 5. Disable zone 6. Disable output group 7. Disable device 8. Set Time 9. View serial numbers and firmware versions
Report menu	1. Print event log 2. Save config or Event log to USB 3. Field device type status 4. Product serial numbers 5. Loop state signal report 6. Field device data report 7. Field device state signal value 8. View advanced programming

8.3. Adjust & Install menus (User access level 3)

Table 10: Menus accessible to user Access Level 3

User access level 3 (L2 password)		
Menu level 1	Menu level 2	Menu level 3
Adjust menu	1. Individual device registration	
	2. Set address description	
	3. Assign devices to zones	
	4. Delays and linkage of SND/FB by zone	1. Set SND and FR delays for all zones 2. Set sounder delay by zone 3. Set fire routing delay by zone 4. Link/unlink sounders by zone 5. Link/ unlink fire routing by zone
	5. Set loop class (A or B)	
	6. Assign device to activation group	
	7. Enter maintenance company details	
	8. View analog value curve of a detector	
	9. Configure Day/Night mode	
	0. Set Printer	
Install menu	1. Wizard	1. Install wizard 2. Maintenance wizard
	2. Auto- Registration	
	3. Set password	1. Operator password 2. Installer password
	4. Set language	1. Spanish 2. English 3. Catalan 4. Engineering language
	5. Set special operation mode	1. JBE-P2L1 EN 54 2. Commissioning
	6. Enter advanced programming	
	7. Clear	1. Clear descriptions 2. Clear all zone info 3. Clear Advanced programming 4. Load a factory setting
	8. USB firmware update	
	9. System configuration	
	9. Load configuration from USB	

9 List of Tables

10 List of Figures

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